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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/517,212

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Jean-Marie Basset

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01/08/2008

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EXAMINER

NGUYEN, HUY TRAM

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/517,212

Applicant(s)

BASSET ET AL.

Examiner

Huy-Tram Nguyen

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 8-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments filed on November 13, 2007 have been fully considered but they are not persuasive as described under rejections below.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 3 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Examiner interprets the phrase "methane used only as an initial alkane" as methane can be only as an initial alkane in this process and can not be added later. However, this process does not eliminate other alkane to be used as initial alkanes.

One the other hand, the Applicant's specification on Page 5, lines 13 and 14 states "the methane used in the present invention constitutes essentially the only initial alkane used in the conversion". Examiner interprets this as only methane can be used as the initial alkane in the conversion.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, and 8-20 are rejected under 35 U.S.C. 102(b) as being anticipated by

**Basset et al. (WO 01/04077 A1).**

Regarding Claim 1, Basset et al. reference discloses a process for producing ethane (**Examples 4,5 and 6**), which comprises bringing methane used only as an initial alkane into contact with a metal catalyst selected from the group consisting of metal hydrides, metal organic compounds and mixtures thereof (**Page 2, Lines 8-13**).

Regarding Claim 2, Basset et al. reference discloses the process according to claim 1, wherein the metal catalyst comprises at least one metal selected from the group consisting of lanthanides, the actinides and the metals from Groups 2 to 12 of the Periodic Table of the Elements (**Page 5, Lines 12-14 – Group 3,4,5 and 6**).

Regarding Claim 3, Basset et al. reference discloses the process for the conversion of methane to carbon-containing products (**Examples 4, 5,6, 7 and 8**), comprising bringing methane used only as an initial alkane into contact with a metal catalyst comprising at least one metal selected from the group consisting of lanthanides, the actinides and the metals from Groups 2 to 12 of the Periodic Table of the Elements (**Page 5, Lines 12-14**), so as to produce ethane in a proportion of at least 65% by

weight with respect to carbon-containing products formed in the process (**Page 12, Table 1**).

Regarding Claim 4, Basset et al. reference discloses the process according to claim 3, wherein the ethane is produced in a proportion of at least 70% by weight with respect to carbon-containing products formed in the process (**Page 12, Table 1, Column 2- 67-94%**).

Regarding Claim 5, Basset et al. reference discloses the process according to claim 3 or 4, wherein the metal catalyst is selected from the group consisting of metal hydrides, metal organic compounds and mixtures thereof (**Page 2, Lines 8-13**).

Regarding Claim 6, Basset et al. reference discloses the process according to claim 1 or 3, wherein the process is carried out under conditions involving a non-oxidative coupling of methane (**Page 3, equation (2) – no oxygen**).

Regarding Claim 8, Basset et al. reference discloses the process according to claim 1 or 3, wherein the process is a single-stage process (**Page 13, Lines 1-9 - main stage**).

Regarding Claim 9, Basset et al. reference discloses the process according to claim 1 or 3, wherein the process is carried out with operating conditions maintained substantially constant during the ethane production (**Page 9, Lines 21-22**).

Regarding Claim 10, Basset et al. reference discloses the process according to claim 1 or 3, wherein the process is carried out under a total absolute pressure ranging from  $10^{-3}$  to 100 MPa (**Page 9, Lines 30-32**).

Regarding Claim 11, Basset et al. reference discloses the process according to claim 1 or 3, wherein the process is carried out at a temperature ranging from -30°C to +800°C (**Page 9, Lines 29-30**).

Regarding Claim 12, Basset et al. reference discloses the process according to claim 1 or 3, wherein the process is carried out in the presence of one or more inert agents (**Page 9, Lines 27-28**).

Regarding Claim 13, Basset et al. reference discloses the process according to claim 1 or 3, wherein the metal catalyst is chosen from metal catalysts supported on a solid support (**Page 5, Line 1**).

Regarding Claim 14, Basset et al. reference discloses the process according to claim 13, wherein the solid support is chosen selected from the group consisting of metal oxides, refractory oxides, molecular sieves, sulphated metal oxides, sulphated refractory oxides, metal sulphides, refractory sulphides, sulphided metal oxides, sulphided refractory oxides and azides (**Page 5, Lines 1-2**).

Regarding Claim 15, Basset et al. reference discloses the process according to claim 1 or 3, wherein the metal of the metal catalyst is at least one metal chosen selected from the group consisting of yttrium, scandium, lanthanum, titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum, tungsten, rhenium, iron, ruthenium, cobalt, rhodium, iridium, nickel, palladium, platinum, cerium and neodymium (**Page 5, Lines 12-20**).

Regarding Claim 16, Basset et al. reference discloses the process according to claim 15, wherein the metal is at least one metal chosen selected from the group

consisting of yttrium, titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum, tungsten, ruthenium, rhodium and platinum (**Page 5, Lines 15-20**).

Regarding Claim 17, Basset et al. reference discloses the process according to claim 16, wherein the metal is at least one metal chosen selected from the group consisting of yttrium, vanadium, niobium, tantalum, chromium, molybdenum, tungsten, ruthenium, rhodium and platinum (**Page 5, Lines 15-20**).

Regarding Claim 18, Basset et al. reference discloses the process according to claim 1 or 3, wherein the process is carried out in the gas phase (**Page 9, Lines 22-23**).

Regarding Claim 19, Basset et al. reference discloses the process according to claim 18, wherein the metal catalyst is used in a **solid form, essentially forming the bed of the reactor** (Page 9, Lines 23-24).

Regarding Claim 20, Basset et al. Reference discloses the process according to claim 1 or 3, wherein the process comprises adding the methane to the metal catalyst, or adding the metal catalyst to the methane, or simultaneously mixing the methane and the metal catalyst (**Page 9, Lines 24-26**).

### ***Conclusion***

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huy-Tram Nguyen whose telephone number is 571-270-3167. The examiner can normally be reached on MON- THURS: 6:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

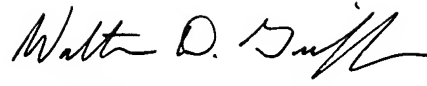
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Page 8

HTN  
1/2/08

A handwritten signature in black ink, appearing to read "Walter D. Griffin". The signature is fluid and cursive, with a large, stylized initial "W".

WALTER D. GRIFFIN  
SUPERVISORY PATENT EXAMINER